

WHAT IS CLAIMED IS:

1. A measurement endoscope system comprising:
  - an electronic endoscope having an imaging unit;
  - an image processing unit for receiving an imaging signal from the imaging unit and producing a video signal;
  - a control device including at least a control unit that has a measurement processing block which performs measurement processing on the basis of an image signal produced by the image processing unit; and
  - a display device for receiving a video signal transmitted in response to a direction given by the control unit included in the control device, and displaying an image represented by the video signal, wherein:
    - the measurement processing block included in the control unit has a missing-edge portion measuring means for measuring the area of a missing portion of an edge of an object matter; and
    - the missing-edge portion measuring means comprises:
      - a first reference line designating means for designating a first reference line that corresponds to a side surface of the object matter which the periphery of the missing edge portion used to contain;
      - a first reference plane designating means for designating a first reference plane that corresponds to the

top of the object matter which the periphery of the missing edge used to contain, and that intersects the first reference line, which is designated by the first reference line designating means, at one point;

a contour designating means for determining a missing-contour border by designating any points on the border of the missing edge portion; and

an arithmetic and logic means for calculating the area of a field that is formed by moving the missing-contour border, which is designated by the contour designating means, up to the first reference plane in a direction parallel to the direction of the first reference line, and that is defined with the missing-contour border, first reference line, and first reference plane.

2. A measurement endoscope system according to Claim 1, wherein:

the first reference plane is a plane containing a second reference line that passes through two points which are contained in the top of the object matter and which are located near the missing portion; and

a vector normal to the first reference plane, that is, a direction vector whose direction represents the direction of the first reference line, and a direction vector whose direction represents the direction of the second reference

line are contained in the same plane.

3. A measurement endoscope system according to Claim 1, wherein the first reference plane is a plane passing through one point that is contained in the top of the object matter and that is located near the missing portion, and the vector normal to the first reference plane corresponds to the direction vector whose direction represents the direction of the first reference line.

4. A measurement endoscope system according to Claim 2, wherein the missing-contour border is approximated to a polygonal line formed by linking  $n$  points where  $n$  denotes 2 or more.

5. A measurement endoscope system according to Claim 3, wherein the missing-contour border is approximated to a polygonal line formed by linking  $n$  points where  $n$  denotes 2 or more.

6. A measurement endoscope system according to Claim 4, wherein the area is calculated as the sum of the area of one triangle and the areas of  $(n-2)$  trapezoids.

7. A measurement endoscope system according to Claim 5,

wherein the area is calculated as the sum of the area of one triangle and the areas of  $(n-2)$  trapezoids.

8. A measurement endoscope system according to Claim 1, further comprising a plurality of types of optical adapters freely detachably attached to the distal section of the electronic endoscope and each provided with a predetermined observational optical system.